

THE ANNALS

AND

MAGAZINE OF NATURAL HISTORY.

[SEVENTH SERIES.]

“..... per litora spargite museum,
Naiades, et circum vitreos considite fontes:
Pollice virgineo teneros hic carpite flores:
Floribus et pictum, divæ, replete canistrum.
At vos, o Nymphæ Craterides, ite sub undas;
Ite, recurvato variata corallia trunco
Vellite muscosis e rupibus, et mihi conchas
Ferte, Deæ pelagi, et pingui conchyliis succo.”
N. Parthenii Giannettasi, Ecl. 1.

No. 85. JANUARY 1905.

I.—*Notes on some Recent Bryozoa in d'Orbigny's
Collection.* By ARTHUR WM. WATERS.

[Plate I.]

BEFORE completing my memoir * on the Bryozoa collected in the Antarctic by the 'Belgica,' I looked through d'Orbigny's collection to see if it contained any of the species found in the Antarctic. These recent † Bryozoa are in the Palæontological Department of the Muséum d'Histoire naturelle in Paris, and were referred to by d'Orbigny in the 'Paléontologie Française,' Terrains Crétacés, vol. v., and some had already been described by him in 'Voyage dans l'Amérique Méridionale.' However, a large proportion of the species

* "Resultats du Voyage du S.Y. 'Belgica,' Bryozoa," Expéd. Antaret. Belge, 1904.

† The fossil Cyclostomata have been revised by Pergens in "Révisions des Bryozoaires du Crétacé figurés par d'Orbigny," Bull. de la Soc. Belge de Géologie, vol. iii. 1889, pp. 305-400, pls. xi.-xiii.; and the fossil Chilostomata have been revised by Canu in "Révision des Bryozoaires du Crétacé figurés par d'Orbigny, Cheilostomata," Bull. Soc. Géol. de France, 3^e sér. vol. xxvii. 1900, pp. 334-463, pls. iv.-vii.

were described in such a way that we have had no idea as to the species intended, for the characters used were not those which we now know are of most importance.

Although my examination was but a very hurried one, it was possible to recognize many species which have since d'Orbigny's time been more fully described; in others the affinities only could be indicated, for it is often only possible to make a determination after prolonged examination and preparation of opercula and other structures, besides reference to the literature. Some of the most important books were at my side during the examination, but it was not possible to have all available as if I had worked in my own study. In some cases nothing more could be said than that the determination of some unsatisfactory specimens is impossible; but even this may save other people time and prevent their trying to make impracticable comparisons and determinations.

Naturally our knowledge of the geographical distribution is increased in many cases, and some of the 'Challenger' species had been previously seen by d'Orbigny, as:—

Thalamoporella labiata, Busk.

Adeonella polymorpha, Busk.

Lepralia japonica, Busk.

| *Haswellia auriculata*, Busk.

| *Adeonella platatea*, Busk.

It has seemed advisable to refer to the species in the order in which they occur in the 'Paléontologie Française,' giving the page and plates, when figured, then the reference to 'Voyage dans l'Amérique Méridionale' is added, as well as to my memoir of the Bryozoa from the Antarctic collected by the 'Belgica,' and to a paper of mine on Bryozoa from Cape Horn now in the printer's hands. It may be taken that, with few exceptions, the names in the collection are those given in the 'Paléontologie Française,' but a few species have the names given in the 'Voyage,' and some others the convenient name *Cellepora*; but it has not been necessary to refer to these exceptions.

It will be understood that only a part of the recent Bryozoa described by d'Orbigny are here mentioned and that the paper is worked up from rough notes made during a short visit. Fig. 1 (Pl. I.) is drawn from the actual specimen, but the other figures are drawn from rough sketches and must be considered to a large extent diagrammatic.

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate.			
28	13608	<i>Cellaria cauleana</i> , d'Orb.	Chinese Seas. = <i>Cellaria salicornioides</i> , Lamx., group. Patagonia. = <i>Cellaria malvinensis</i> , Busk.
28	13607	<i>Cellaria ornata</i> , d'Orb. Voy. Amér. Mérid. p. 9, pl. ii. figs. 10-14. <i>Cellaria malvinensis</i> , Waters, Expéd. Ant. Belgé, Bry. p. 37, pl. ii. figs. 10 a, b, pl. viii. fig. 5. <i>Cellaria quadrilatera</i> , d'Orb.	
29	13610	<i>Terri-cellaria aculeata</i> , d'Orb. <i>Tricellaria aculeata</i> , d'Orb. Voy. Amér. Mér. pl. ii. figs. 1-4. <i>Bicellaria aculeata</i> , d'Orb. ib. p. 8. <i>Cellularia puelcha</i> , d'Orb. Mér. p. 1, pl. i. figs. 9-13. <i>Flabellopora elegans</i> , d'Orb.	Chinese Seas. = <i>Farcinia oculata</i> *, Busk. Widely distributed: Australia, Indian Ocean, Kerguelen, N. & S. Atlantic. Patagonia. In the tube there was a label "Algers," but there was only <i>Membranopora pilosa</i> , so that some change has been made.
48	13611	<i>Terri-cellaria aculeata</i> , d'Orb. <i>Tricellaria aculeata</i> , d'Orb. Voy. Amér. Mér. pl. ii. figs. 1-4. <i>Bicellaria aculeata</i> , d'Orb. ib. p. 8. <i>Cellularia puelcha</i> , d'Orb. Mér. p. 1, pl. i. figs. 9-13. <i>Flabellopora elegans</i> , d'Orb.	Patagonia. = <i>Scrypocellaria</i> . The dorsal surface has vitracula and avicularia. Long radiæ from near the avicularium. Malacca. (Pl. I. fig. 5.) This is not what I described as <i>Conescharvelliina elegans</i> , d'Orb. (Ann. & Mag. Nat. Hist. ser. 5, vol. xx. p. 200, pl. v. figs. 13-17), although d'Orbigny's figure more nearly corresponds with my specimen than with the original from Malacca. There is an oval depressed area, the oral aperture is sinuated, above the aperture there is a small oval avicularium and an opening below; distally to the area there are two openings, which may be replaced by avicularia.
53 & 1866	661, figs. 1-5	13669	<i>Terri-cellaria aculeata</i> , d'Orb. <i>Tricellaria aculeata</i> , d'Orb. Voy. Amér. Mér. pl. ii. figs. 1-4. <i>Bicellaria aculeata</i> , d'Orb. ib. p. 8. <i>Cellularia puelcha</i> , d'Orb. Mér. p. 1, pl. i. figs. 9-13. <i>Flabellopora elegans</i> , d'Orb.	Patagonia. = <i>Scrypocellaria</i> . The dorsal surface has vitracula and avicularia. Long radiæ from near the avicularium. Malacca. (Pl. I. fig. 5.) This is not what I described as <i>Conescharvelliina elegans</i> , d'Orb. (Ann. & Mag. Nat. Hist. ser. 5, vol. xx. p. 200, pl. v. figs. 13-17), although d'Orbigny's figure more nearly corresponds with my specimen than with the original from Malacca. There is an oval depressed area, the oral aperture is sinuated, above the aperture there is a small oval avicularium and an opening below; distally to the area there are two openings, which may be replaced by avicularia.

* This is the *Nellia oculata*, Busk, but the diagnosis of the genus *Nellia* is so unsatisfactory that it cannot be retained. Pourtalès (1867) took the name *Farcinia*, although it had been previously used by Fleming for *Cellaria*; but Fleming's name had been dropped, as being a synonym.

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate.			
59	13616	<i>Fincularia elegans</i> , d'Orb. Voy. Amér. Mérid. p. 21, pl. ix. figs. 25-28. <i>Fincularia labiata</i> , Busk, Zool. Chall. Exp. pl. xxx. p. 73, and fig. 3. <i>Thalanioporella labiata</i> , Waters, "Bry. Cape Horn," J. Linn. Soc., Zool. figs. 6-9. <i>Fincularia pentagona</i> , d'Orb. Voy. Amér. Mér. p. 21, pl. x. figs. 4-6. <i>Haswellia auriculata</i> , Waters, "Bry. Cape Horn," Journ. Linn. Soc., Zool.	In the lower part of the zoarium there are numerous round openings for the attachment of radicles. I am not prepared to discuss the generic position from the slight examination made, and therefore the name <i>Flabellipora</i> is left provisionally. = <i>Thalanioporella labiata</i> (Busk). To a few zoecia there is a bar across the opesium.
59	13617	<i>Haswellia auriculata</i> , Waters, "Bry. Cape Horn," Journ. Linn. Soc., Zool.	= <i>Haswellia auriculata</i> (Busk). Falkland Islands.
59	13618	<i>Fincularia sinensis</i> , d'Orb.	Chinese Seas. = <i>Membranipora Savartii</i> , Aud., group. Mediterranean. = <i>Porella</i> or <i>Escharoides</i> .
101	13620	<i>Eschara retiformis</i> , d'Orb.	Mediterranean. = <i>Lepralia foliacea</i> , Ell. & Sol.
101	13620 A	<i>Eschara retiformis</i> , d'Orb.	Ile de Ré. = <i>Porella</i> . This is flabelliform, ovicells not much raised, large avicularia, but the avicularian chamber does not extend as far down as in the Antarctic
101	13621	<i>Eschara pavonina</i> , d'Orb.	<i>Porella saccata</i> (Busk). Newfoundland. This is not the <i>E. elegantula</i> of Smitt and others, but has been described by Busk as <i>E. perpusilla</i> (see Waters, "Bry. from Franz-Josef Land," Journ. Linn. Soc., Zool. xxviii. p. 81, pl. x. figs. 13, 18, 19, pl. xi. fig. 1).
102	13622	<i>Eschara elegantula</i> , d'Orb.	Newfoundland. This is not the <i>E. elegantula</i> of Smitt and others, but has been described by Busk as <i>E. perpusilla</i> (see Waters, "Bry. from Franz-Josef Land," Journ. Linn. Soc., Zool. xxviii. p. 81, pl. x. figs. 13, 18, 19, pl. xi. fig. 1).
188#	13596	<i>Electrina lamellosa</i> , d'Orb.	Ile de Noirmoutiers. = bilaminate <i>Membranipora pilosa</i> , L.
201	<i>Escharellina indica</i> , d'Orb.	= <i>Membranipora</i> , like bilaminate <i>muuac</i> , B.

207	....	13681	<i>Escharellina ramosa</i> , d'Orb.	Pondicherry. = <i>Brachyridia</i> or <i>Adconella</i> . (Pl. I. fig. 10.) This has a depressed suboral pore, and to all the zoecia except the outside ones there is a pair of large avicularia directed downwards and towards the median line of the zoecium. The outer zoecia have no avicularia and there is a wide denticle in the aperture.
207	....	13682	<i>Escharellina lamnosa</i> , d'Orb.	Ile de Basilan. = <i>Adconella</i> , probably <i>A. polymorpha</i> , Busk. There is only a small piece.
207	....	13683	<i>Escharellina Cecilleana</i> , d'Orb.	Ile de Basilan. = <i>Adconella platataca</i> , Busk. There may also be another species among the specimens. There are very long vicarious avicularia about the length of two zoecia.
244	....	13701	<i>Bifustra ramosa</i> , d'Orb.	Manila. = <i>Membranipora Savartii</i> group. I have this erect branching form from Palm Island, N.E. Australia.
244	....	13702 13716	<i>Bifustra aculeata</i> , d'Orb. <i>Membranipora bipartita</i> , d'Orb. Pal. Fr. p. 543.	Newfoundland. (Pl. I. fig. 1.) There are about the middle of the border of the zoecium two strong processes, which often meet to form a bridge, and they are seen to be each formed of two spines. There are occasionally other smaller processes arising from the border. This was also described as <i>M. bipartita</i> , but I do not think that <i>S. arctica</i> is more than a manuscript name. Although when first seen I expected to find it had subsequently been figured and described, I have not met with any other description.
244	....	13705	<i>Seniifustrellaria arctica</i> , d'Orb. MSS.	Patagonia. <i>Membranipora Savartii</i> group, bilaminata.
322	....	13703	<i>Bifustra puelcha</i> , d'Orb.	= <i>Bugula</i> .
323	....	13703	<i>Fuista puelcha</i> , d'Orb. Voy. Amér. Mér. p. 18, pl. viii. figs. 15, 16. <i>Ornithopora arctica</i> , d'Orb. <i>Ornithopora multiseriatis</i> , d'Orb.	Patagonia. The specimen is in very poor

* The paging 185-188 is duplicated, and the second set must be called 185 a-188 a.

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate.			
331	13600	<i>Acanarchis multiseriatis</i> , d'Orb. Voy. Amér. Mér. p. 10, pl. iii, figs. 9-12. <i>Canda patagonica</i> , d'Orb. Voy. Amér. Mér. p. 9, pl. ii, figs. 5-9.	condition. There is a large avicularium arising from the middle of the zoecium. 2-3 inner spines, 4 outer spines. Patagonia. Poor fragment, apparently <i>Caberea Davyana</i> , Busk.
332	13601	<i>Canda indica</i> , d'Orb.	Brazil. <i>Celtularia</i> group.
333	13602	<i>Caberea dichotoma</i> , d'Orb.	Australia. Multiserial.
336	13613	<i>Tubucellaria barbata</i> , d'Orb.	Australia. = <i>Celtaria setigera</i> , Desm. & Les.
345	<i>Eschara lobulata</i> , M.-Edw., marked "Vicularia."	= <i>Adeonella</i> .
364	13625	<i>Retepora indica</i> , d'Orb.	Ile de Basilan. Perhaps <i>R. contortuplicata</i> , Busk.
366	<i>Semieschara africana</i> , d'Orb.	Probably <i>Retepora cellulosa</i> , L. Perhaps specimens have been changed.
366	722, fig. 1	....	<i>Semieschara lamellosa</i> , d'Orb.	Newfoundland. Will be <i>Escharoides</i> .
367	13629	<i>Semieschara magna</i> , d'Orb.	Détroit de Malacca. = <i>Lepralia japonica</i> , Busk. In one case there are a few broad triangular avicularia on the front, and on the dorsal surface there are pores of attachment, as in <i>L. dorsipora</i> , B. Specimens from Japan have a broad triangular avicularium near the aperture.
388	13636	<i>Mollia tuberculata</i> , d'Orb.	Calvados. = <i>Gemellipora venusta</i> , Norm. The surface of the zooecia and ovicells is perforated, but until washed this was scarcely distinguishable. There are other species on the shell.
399	13637	<i>Collepora subtorquata</i> , d'Orb. <i>Escharina torquata</i> , d'Orb. Voy. Amér. Mér. p. 11, pl. iv, figs. 1-4.	Rio Janeiro. D'Orbigny's figure is good, but the lateral wings by the side of the sinus project more than is figured.
399	13643	<i>Collepora Bougainvillei</i> , d'Orb. <i>Escharina Bougainvillei</i> , d'Orb. Voy. Amér. Mér. p. 12, pl. iv, figs. 9-12.	Falkland Islands. = <i>Hippothoa</i> . A few zooecia on a shell have the thick projection near the aperture and usually one lower down, and there may be more; but

there is not the regularity figured by Busk. Ovicells wide. = *Hipbothoa*. Forms a continuous incrustation. The ovicells are perforated, wide, like those figured by d'Orbigny for *Cellepora Bougainvillei*, d'Orb. I do not find the two projections on the front; but there are sometimes pores round the zoecia, though not with projecting tubes, as in *C. Bougainvilliana*, d'Orb. Arica. This is *Schizoporella* with lozenge-shaped zoecia surrounded by a raised border; the surface is perforated; the sinus of the oral aperture is wide, and there is a small oval avicularium by the side of the sinus. In the shape of the zoecium, aperture, and the position of the avicularium this reminds us of *Schizoporella sydneysensis*, Waters, but there are none of the characteristic bosses.

Falkland Islands. = *Hipbothoa*. D'Orbigny's figure is not very satisfactory. The structure is more or less porcellanous, and in the younger zoecia there are two oral spines. The oral aperture of the ovicelliferous zoecia is wider than that of the ordinary zoecia, but the sinus in the former is much the narrower. The front wall frequently projects over the aperture, forming a micro. Probably *H. Edwardsiana*, *H. Bougainvillei*, and *H. chilina* are only varieties of the same thing. Chili. = *Lepralia*. The aperture is Lepralioid, there are radiating ribs and a thick ovicell. At the side there is an avicularium directed outwards, as in *E. Alvareziana*, d'Orb., which it much resembles. On the shell there is *M. Malucii*, Aud., and *Schizoporella linearis*, and it looks as though it were Mediterranean and as if it were out of place. Nothing like *C. peruviana* was seen.

Cellepora chilina, d'Orb.
Escharina chilina, d'Orb. Voy. Amér.
 MÉR. p. 11, pl. iv. figs. 5, 8.

Cellepora elegans, d'Orb.
Escharina elegans, d'Orb. Voy. Amér.
 MÉR. p. 13, pl. v. figs. 9-12.

Cellepora Edwardsiana, d'Orb.
Escharina Edwardsiana, d'Orb. Voy.
 Amér. MÉR. p. 12, pl. v. figs. 1-4.

Cellepora costata, d'Orb.
Escharina costata, d'Orb. Voy. Amér.
 MÉR. p. 14, pl. vi. figs. 5-8.

Cellepora peruviana, d'Orb.
Escharina peruviana, d'Orb. Voy. Amér.
 MÉR. p. 16, pl. vii. figs. 9-12.

13638

13639

13642

13640

13641

399

399

399

399

399

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate.			
418	13654	<i>Reptolatereschara capensis</i> , d'Orb.	Cape of Good Hope. I do not see that this differs from <i>Schizoporella annularis</i> , Moll.
420	13657	<i>Celleporaria ramosissima</i> , d'Orb.	The branches are about 3.5 mm. in diameter and anastomose, the ovicell is widely open and imperforate, and there is a stout avicularium by the aperture. Apparently <i>Celleporaria ramulosa</i> , L.
216	<i>Celleporina ramosissima</i> , d'Orb.	Manila. Is probably <i>Celleporina dichotoma</i> , Hincks.
420	13658	<i>Celleporaria gracilis</i> , d'Orb.	Senegal. The zoarium is branched, mammillated; ovicells much raised, with deep area; oral aperture small, Lepralioid.
216	13659	<i>Celleporaria tuberculata</i> , d'Orb.	L. Labelled <i>Escharallina africana</i> , but it is <i>Micro-porella ciliata</i> , Pall. There are only a few zoocia. Perforated all over.
434	13667	<i>Porina africana</i> , d'Orb.	Rio Janeiro. It is much like <i>Schizoporella unicornis</i> , Johnst., and has a similar mucro, but differs in having the ovicell perforated all over, and the sinus in the aperture is somewhat wider. The older zoocia are sometimes erect, as in <i>Cellepora</i> , and are surrounded by a raised border, which usually encloses the avicularium and the ovicell.
442	13672	<i>Reptoporina Isabelleana</i> , d'Orb. <i>Escharina Isabelleana</i> , d'Orb. Voy. Amér. Mér. p. 12, pl. iv. figs. 13-15.	Falkland Islands.
442	13673	<i>Reptoporina simplex</i> , d'Orb. <i>Escharina simplex</i> , d'Orb. Voy. Amér. Mér. p. 13, pl. v. figs. 5-8. <i>Schizoporella simplex</i> , Waters, Exp. Antaret. Belge, Voy. p. 51, pl. iii. fig. 6.	
443	13675	<i>Reptoporina rugosa</i> , d'Orb.	Ile de Ré. = <i>Schizoporella unicornis</i> , Johnst.
444	13676	<i>Reptoporina hexagona</i> , d'Orb.	Ile de Ré. = <i>Micro-porella Matusii</i> , Aud.

443	....	13674	<i>Reptoporina cornuta</i> , d'Orb. <i>Escharina cornuta</i> , d'Orb. Voy. Amér. Mér. p. 13, pl. v. figs. 13-16. <i>Reptoporina aspera</i> , d'Orb.	Chili. I do not find any <i>R. cornuta</i> on the shell. There is, however, <i>Smittia Alvareziana</i> , d'Orb.
444	....	13677		Algiers. = <i>Schizoporella</i> with small round avicularium below the oral aperture.
444	....	13678	<i>Reptoporina candiana</i> , d'Orb.	Chinese Seas. = <i>Schizoporella</i> with round avicularium below the sinus, wide globular ovicell.
447	714. figs. 14-16	13679	<i>Conescharrellina angustata</i> , d'Orb.	Ile de Kasilan. (Pl. I. fig. 7.) D'Orbigny's figure does not give a correct idea. The zoecia occur in longitudinal rows, and between these rows there is a depressed groove with avicularian or vibracular pores. The zoecia have an oval aperture with an avicularium below it.
447	....	13680	<i>Conescharrellina dilatata</i> , d'Orb.	Manila. (Pl. I. fig. 6.) There are two species in the tube. One has a nearly round oral aperture, with an avicularium below, and between the rows of zoecia there is a depressed groove with a single row of large pores.
453	....	13686	<i>Reptescharrellina Alvareziana</i> , d'Orb. <i>Escharina Alvareziana</i> , d'Orb. Voy. Amér. Mér. p. 14, pl. vi. figs. 1-4. <i>Smittia Alvareziana</i> , Waters, & Bry. Cape Hom., Journ. Linn. Soc., Zool.	Payta (Peru). The figure is pretty good, but the avicularia project further out than figured. No ovicells. Small muero to aperture.
454	....	13689	<i>Reptescharrellina borealis</i> , d'Orb.	Nowfoundland. = <i>Schizoporella vulgaris</i> , Moll.
453	....	13688	<i>Reptescharrellina armata</i> , d'Orb. <i>Escharina armata</i> , d'Orb. Voy. Amér. Mér. p. 15, pl. vii. figs. 5-8.	Falkland Islands. = <i>Microporella ciliata</i> . There is a crescentic pore, granulated surface, avicularium on one side.
453	....	13687	<i>Reptescharrellina regularis</i> , d'Orb. <i>Escharina regularis</i> , d'Orb. Voy. Amér. Mér. p. 15, pl. vi. figs. 13-16.	Payta. This is <i>Microporella</i> , probably <i>M. ciliata</i> , var. <i>californica</i> , Hincks.
454	....	13690	<i>Reptescharrellina inequalis</i> , d'Orb.	Malacca. (Pl. I. fig. 8.) = <i>Schizoporella</i> . Zoecial surface granular, pores round the border of the zoecium; on one or both sides of the oral aperture an avicularium on a raised chamber directed downwards, and an oval avicularium immediately below the sinus placed

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate.			
458	13691	<i>Multescharellina globulosa</i> , d'Orb. <i>Multescharellina candecana</i> , d'Orb.	transversely. There is also another specimen marked "13690?" from the Ile de Basilan. This is, however, quite different, more like <i>Batopora</i> , with <i>Gemellipora</i> -like aperture, and a large avicularium at one side of the zoecium and a small triangular one above the aperture. Algiers. = <i>Lagenipora Costazi</i> , And. Straits of Malacca. = <i>Ceclipora</i> of the Holostomatous group. There are denticles on the proximal edge of the aperture and there are vicarious avicularia. There is only one small and poor specimen.
458	13692		
462	13694	<i>Semischarella flexuosa</i> , d'Orb. <i>Reptescharella Brongniartiana</i> , d'Orb. <i>Escharina Brongniartiana</i> , d'Orb. Voy. Amér. MÉR. p. 14, pl. vi. figs. 8-12.	= <i>Lepralia Pallasiæna</i> , Moll. Valparaiso. This is <i>Hippothoa</i> with three forms of oral aperture, namely, the ovicelligerous short and wide, the ordinary ones with a wide sinus, and a much smaller one with a narrow sinus; the ovicells are wide and large, as in <i>Hippothoa Bougainvillei</i> , d'Orb. There are pores between the zoecia, but no raised tubes as in the next specimen.
465	13695		
		13630	<i>Reptescharella Brongniartiana</i> , d'Orb.	(Pl. I. figs. 2-4.) This specimen was in a tube with <i>R. elegans</i> , d'Orb., and is one of the most interesting things met with, as from the pore-chambers there are erect tubes, either simply tubular or funnel-shaped, and frequently at the proximal end of the zoecium there is a very large tube. The presence of these shafts from the pore-chambers seems to be unknown in any other species, and in some parts of the colony the tubes are hardly raised, while, as already mentioned, in other specimens there were no raised

tubes. In *Lepralia Poissonii*, Aud., there are delicate spines round the border of the zoecium, and the function may be similar. The primary zoecium, as seen from below, is nearly round.

Falkland Islands. In the tube there is a ticket, "échantillon manquant"; but the *Smithia reticulata*, MacG., occurs on other shells, and we may take it that d'Orbigny had *S. reticulata* before him.

Straits of Malacca. It is *Cribritina*, probably *radiata* without avicularia.

Algiers. = *Cypularia umbellata*, Desf.

Algiers. = *Microporella Heckeli**, Reuss, = *M. violacea*, auct.

Corsica. *M. Heckeli*, Reuss.

Malacca. There are several species on the shell, but the one referred to will be *Smithia reticulata*, MacG.

Manila. There are several species on the shells, but the one which I think was referred to by d'Orbigny is a

Smithia much like *S. reticulata*, var. *spathulata*, MacG. The oblong rectangular zoecia grow in regular

longitudinal lines; they are surrounded by a row of pores, and at one side there is a large curved avicularium.

Malacca. = *Membranipora Savartii*, Aud., or allied species.

De de Noirmontiers. This has a long oval opesium and belongs to the *Pyripora* group of the Membraniporidae.

Chili. On one specimen there were 7 spines, but another specimen so named was *M. spinosa*.

Reptescharrella rimulata, MacG.
Escharina rimulata, d'Orb. Voy. Amér.
Mér. p. 15, pl. vii. figs. 1-4.

Reptescharrella indica, d'Orb.

Discoporella Berardana, d'Orb.

Reptoporellina porosa, d'Orb.

Reptoporellina porosa, d'Orb.

Reptoporellina costata, d'Orb.

Reptescharipora complanata, d'Orb.

Flustrellaria caudana, d'Orb.

Pyripora ramosa, d'Orb.

Membranipora echinata, d'Orb. Voy.
Amér. Mér. p. 16, pl. vii. figs. 13-17
(misprinted in text *eschinata*).

465

466

474

477

478

490

515

539

541

* Neviani has made a genus *Heckeli* for this form ("Bri. foss. d. Farnesina e Monte Mario," Pal. Ital. p. 106 (30), pl. v. figs. 27, 29).

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate.			
542	13708	<i>Membranipora spinosa</i> , d'Orb. Voy. Amér. Mér. p. 16, pl. viii. figs. 1-4.	Peru. The specimen has no spines, and perhaps spongespicules were mistaken for spines; but there is a <i>Membranipora</i> from Chili with 17-18 spines which is <i>M. spinosa</i> .
542	13709	<i>Membranipora irregularis</i> , d'Orb. Voy. Amér. Mér. p. 17, pl. viii. figs. 5, 6.	Peyu. There is no <i>Membranipora</i> on the shell, only <i>Microporella Matsui</i> , Aud.
542	13713	<i>Membranipora sinensis</i> , d'Orb.	Chinese Seas. (Pl. I. fig. 9.) It has a large round opesium, a small cap-like ovicell, and by the distal edge a long slightly curved avicularium. This reminds us of <i>M. nigrans</i> , Hincks, but the avicularia are much longer.
543	13714	<i>Membranipora malaccensis</i> , d'Orb.	Malacca. = <i>M. Savatii</i> , Aud., group.
543	13714 A	<i>Membranipora malaccensis</i> , d'Orb.	Ile de Galega. This is quite a different thing.
543	13716	<i>Membranipora bipartita</i> , d'Orb.	Newfoundland. = <i>Biflustra aculeata</i> , d'Orb. Pal. Fr. p. 244 (see page 5).
543	13715	<i>Membranipora ciliata</i> , d'Orb.	Calvados. Someone had written in the box " <i>spinifera</i> ." There are stout spines round the border, and it is probably <i>M. spinifera</i> , Johnst.
561	13718	<i>Discoflustrella donna</i> , d'Orb.	Algiers. Zoecium hexagonal, with the oral aperture subtriangular.
570	13722	<i>Pyriflustrella arctica</i> , d'Orb.	Spitzbergen. = <i>Microporella</i> with large zoecia; surface coarsely granular, few small pores over the surface; median pore round, not far from the oral aperture.
571	13721	<i>Reptoflustrella americana</i> , d'Orb.	Newfoundland. This is what Norman has called <i>Callopora unicorais</i> , var. <i>armifera</i> , Hincks (Ann. & Mag. Nat. Hist. ser. 7, vol. xi. p. 591).
582	13724	<i>Reptoflustrina arctica</i> , d'Orb.	Spitzbergen. = <i>Membranipora</i> with large oval opesium, a wide cap-like ovicell, with a small avicularium at each corner of the ovicell.

581	.....	13723	<i>Reptolustrina complanata</i> , d'Orb.	Indian Sea. Seems to be <i>Membranipora membranacea</i> .
595	.....	13725	<i>Serialaria cornuta</i> , Lamk.	Australia. In the tube is only <i>Fugula</i> .
595	.....	13726	<i>Serialaria crispata</i> , Lamk.	Australia. Is like <i>Amathia tendigera</i> , L. Label inside " <i>cornuta</i> ."
599	.....	13729	<i>Crista sinensis</i> , d'Orb.	Chinese Seas. Fragments too poor for determination.
600	.....	13731	<i>Crista punctata</i> , d'Orb.	Ile de Venado, California. Fragments of <i>Filisparsa</i> .
602	.....	13732	<i>Bicrista Edwardsiana</i> , d'Orb.	Patagonia. There are four small specimens. There are first a number of basal joints without any zoecia, then follow others with two or three zoecia, the intermediates being separated by black chitinous joints. There are but few spines, and these have joints, as figured by d'Orbigny.
602	.....	13734	<i>Myrionium subgracile</i> , d'Orb.	Newfoundland. There is also the same species labelled "Ile de Ré," but without any number. This last specimen has probably been displaced.
608	.....	13735	<i>Fasciculipora ramosa</i> , d'Orb. Voy. Amér. MÉR. p. 21, pl. ix. figs. 22-24.	Falkland Islands. On the specimen or on the stone are also <i>Stomatopora</i> , <i>Schizoporella simplex</i> , d'Orb., and <i>Cribrella latimarginata</i> , Busk.
675	.....	13737	<i>Discofascigera cupula</i> , d'Orb.	Spitzbergen. It is a worn <i>Lichenopora</i> which it would be impossible to determine.
675	.....	13738	<i>Discofascigera caudata</i> , d'Orb.	Ile Chuzan. One of the two specimens might be basal growth of <i>Heteropora</i> or might be <i>Lichenopora</i> .
678	.....	13739	<i>Froundipora verrucosa</i> , Lamx.	Spitzbergen. It is the basal growth described as <i>F. reticulata</i> , Blain.
731	.....	13742	<i>Idmonca dilatata</i> , d'Orb.	Ile de Ré. Small piece, doubtless <i>I. serpens</i> .
731	.....	13743	<i>Idmonca angustata</i> , d'Orb.	Newfoundland. May be <i>I. atlantica</i> , but there is only a small piece.
731	.....	13744	<i>Idmonca rustica</i> , d'Orb.	Manila. All the specimens <i>Filisparsa</i> .
732	.....	13743	<i>Idmonca Mibacana</i> , d'Orb. Voy. Amér. MÉR. p. 20, pl. ix. figs. 17-21.	Falkland Islands. The ovicell is near a bifurcation, not much raised and not extending over many zoecia.
732	.....	13746	<i>Idmonca canariensis</i> , d'Orb.	Teneriffe. Fragments of what Smitth described as <i>Cristina Hochstetteriana</i> , Stol. Floridan Bry. p. 6, pl. ii. figs. 11-13.

Pal. Franç. vol. v.		Number.	Name in Pal. Franç.	Locality and Remarks.
Page.	Plate			
752	13749	<i>Reptotubigera confertens</i> , d'Orb.	Newfoundland. It is probably <i>Idmonca serpens</i> , L. The colour is violet.
817	13756	<i>Filisparsa marginata</i> , d'Orb.	Teneriffe. Worn <i>Idmonca</i> .
817	13757	<i>Filisparsa rugosa</i> , d'Orb.	Chuzam. Zoœcia very close together, as in some <i>Entalophora</i> .
827	758, figs. 10-12	13760	<i>Diastopora latomarginata</i> , d'Orb.	Newfoundland. This is well figured by d'Orbigny.
832	13762	<i>Tubulipora organisans</i> , d'Orb. Voy. Amér. Exp. p. 19, pl. ix. figs. 1-3; Waters, Exp. Ant. Belge, Bry. p. 92.	Falkland Islands. Zoœcial tube 0.14 mm. On the specimen <i>Zueratea ambigua</i> , d'Orb., is growing.
832	13764	<i>Tubulipora gregaria</i> , d'Orb.	Australia. <i>Tubulipora</i> with fasciculate growth.
836	13765	<i>Stomatopora eburnea</i> , d'Orb. <i>Alecto eburnea</i> , d'Orb. Voy. Amér. Mér. p. 20, pl. ix. figs. 14-16.	Falkland Islands.
847	13766 A	<i>Stomatopora eburnea</i> , Waters, Exp. Ant. Belge, Bry. p. 88, pl. ix. figs. 7 a, b. <i>Proboscina serpens</i> , Fab.	Ile de Ré. There is <i>Idmonca serpens</i> , L., and <i>Stomatopora</i> .
847	13766	<i>Proboscina dichotoma</i> , d'Orb. <i>Criserpiä dichotoma</i> , d'Orb. Voy. Amér. Mér. p. 19, pl. ix. figs. 7-13. <i>Stomatopora dichotoma</i> , Waters, Exp. Ant. Belge, Bry. p. 87.	Falkland Islands.

847	....	13768	<i>Proboscina latifolia</i> , d'Orb.	Newfoundland. Large spreading <i>Stomatopora</i> .
847	....	13769	<i>Proboscina malaccensis</i> , d'Orb.	Straits of Malacca. This is <i>Diastopora</i> with inter-zoecial tubules (zoecules) by the oral aperture, as in the Arctic <i>Diastopora obelia</i> , var. <i>arctica</i> , Waters (see "Bry. Cape Horn," Journ. Linn. Soc., Zool.).
862	760, figs. 7-9	13770	<i>Berenicia prominens</i> , Lamx.	Mediterranean. Some specimens are <i>Diastopora obelia</i> , Johnston, and others are a <i>Diastopora</i> without inter-zoecial tubules (zoecules), and in these the closure of the zoecia has tubules.
890	....	13772	<i>Clavellausa africana</i> , d'Orb.	Algiers. This is <i>Entalophora</i> with the ends of the branches clavate.
894	....	13771	<i>Clausa rustica</i> , d'Orb. <i>Pustulopora rustica</i> , d'Orb. Voy. Amér. MÉR. p. 22, pl. x. figs. 13-15. <i>Biffararia rustica</i> , Waters, Exp. Ant. Belge, Bry. p. 60, pl. viii. figs. 19 a, b. <i>Horrera lichenoides</i> , Pont.	Falkland Islands.
919	....	13773	<i>Unicavea californica</i> , d'Orb.	Mediterranean. There is <i>H. frondiculata</i> , Lamx., and another <i>Horrera</i> is either <i>H. lichenoides</i> , Pont., or <i>H. mediterranea</i> , Waters.
972	....	13781	<i>Unicavea clypeiformis</i> , d'Orb. Voy. Amér. MÉR. p. 19, pl. ix. figs. 4-6.	The zoecia are uniserial, slightly raised; zoecia and cancelli about the same size. This does not seem to be the <i>Discoporella californica</i> , Busk.
972	....	13779		Falkland Islands. This is of the <i>Lichenopora hispida</i> , Flem., group. The zoecia are larger than the cancelli.

Other species seen.

Monoporella albicans, Hincks, 13782, occurs from Cuba with *Unicavea*.

Microporella parvipora, Waters, 13676, Falkland Islands, with *Stomatopora*. Exp. Ant. Belge, p. 43, pl. iii. figs. 2 a, b.

Smittia reticulata, MacG., 13676, Falkland Islands.

Eucratea ambigua, d'Orb., 13672, Falkland Islands, with *Tubulipora organisans*, d'Orb.

Laminopora? contorta, d'Orb., locality not given. Michelin, Magasin de Zoologie, 1842, pl. iii. This does not seem to be uncommon in the North Atlantic, as unnamed specimens occur in several museums. Many of the characters resemble those of *Schizoporella bimimita*, Hincks. Busk marked a specimen now in the British Museum from John Adams Bank, Cape de Verde, "Herald," with the manuscript name *Adeonella dolichostoma*, Busk.

Smittia pavonella, Alder, occurs from Teneriffe.

EXPLANATION OF PLATE I.

- Fig. 1. *Membranipora aculeata* (d'Orb.). No. 13702, as *Biflustra aculeata*, d'Orb. Newfoundland. $\times 25$. Page 5.
- Fig. 2. *Ippothoa Brongniartiana* (d'Orb.). No. 13639. From Arica, without name. Copied from sketch. Page 10.
- Fig. 3. Ditto. The erect tubes seen from the side.
- Fig. 4. Ditto. Diagrammatic section across the zoecium, showing the zoecial chambers (z.c.) and the interstitial pore-chambers (p.c.), from which the erect tubes arise.
- Fig. 5. *Flabellopora? elegans*, d'Orb. No. 13669. From Malacca. Drawn from outline-sketch. Page 3.
- Fig. 6. *Conescharellina? dilatata*, d'Orb. No. 13680. From Manila. From outline sketch. Page 9.
- Fig. 7. *Conescharellina? angustata*, d'Orb. No. 13679. From Ile de Basilan. Copied from sketch. Page 9.
- Fig. 8. *Schizoporella (Reptescharellina) inequalis*, d'Orb. No. 13690. From Malacca. Copied from sketch. Page 9.
- Fig. 9. *Membranipora sinensis*, d'Orb. No. 13713. From Chinese Seas. From sketch. Page 12.
- Fig. 10. *Bracebridgia (Escharellina) ramosa*, d'Orb. No. 13681. From Pondicherry. The right-hand zoecia are on the border of the zoarium. From sketch. Page 5.